

A SYSTEM APPROACH TO THE ISSUE OF LOGISTIC MANAGEMENT OF COMMERCE ENTERPRISES

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Abstract: The concept of system approach applied to logistic management is related to a complex consideration of logistic processes occurring in the commerce enterprise. It allows to take into account many inter-related phenomena and to organize complex logistic activities. This paper presented logistic management system in example of commerce enterprises.

Keywords: logistic management, commerce enterprise, logistic system

1. Logistic systems of commerce enterprises

The notion of a system is at present commonly used for definition of totality of processes and phenomena occurring in a given place. "System is a set of mutually interacting components, variables, parts of entities, which are functionally linked and set up a consistent entity" [1.]. A very important issue in the system approach is the holistic demand for attaining the assumed aims. Any enterprise operating on the market is considered as a system. Taking into accounting the management strategy a number of mutually linked processes it is possible to increase the chances for the market success, what is the paramount goal of all economic organizations. P. Blaik considers the following advantages of the system approach [2.]:

- the whole is the most important, its individual components play only a secondary role,
- the necessary condition allowing for mutual linking of individual components is their integration,
- the integrated components set up an indivisible entity, a change in one part requires changes in all others,
- any individual part of the system plays a proper role in the issue of attainment of the desired aim,
- any individual component is placed according to its position in the system hierarchy, and its behaviour is regulated by the relationships with the system,
- independently from the level of system complexity it can be treated as a single indivisible entity,
- everything should start from the system as the whole, its parts and the relationships between them should evolve.

Assuming, that the enterprise is a defined organized system, individual sets of inter-dependent elements can be distinguished inside of it. These are subsystems with their mutual

links [1.].

One of the subsystems occurring in the organizations is the logistic system. The main cause, why logistics is considered using the systems approach is the will to avoid sub-optimization of individual aspects of its activity and considerations on their contributions to rationalize the tasks of the whole logistic system [1.].

According to M. Sołtysik, the application of system approach in logistics follows above all from its features and the fulfilled tasks. Individual logistic processes themselves make up the structure of the system occurring in the form of components and relationships among them. According to the general system theory, “the gist of the system approach in logistics reveals in the fact, that the importance of mutual relationships between individual components of the logistic system is higher than the importance of the components themselves” [3.].

According to S. Abt, a logistic system is “ purposefully organized and integrated – within a given economic setup – material and product, as well as corresponding information flows, which allow for optimization of management of supply chains” [1.].

In any logistic system there is a mutual transfer of processes related to moving and storing wares. The relationships between them may be easily depicted using graphs, whose nodes denote storage point, and the connecting lines denote feedbacks between the nodes.

Taking into account the network of dependencies between the transport and storage processes, logistic systems have the following main structures [1.][2.]:

- single step (Fig. 1a),
- multi-step (Fig 1b, 1c),
- combined (Fig. 1d).

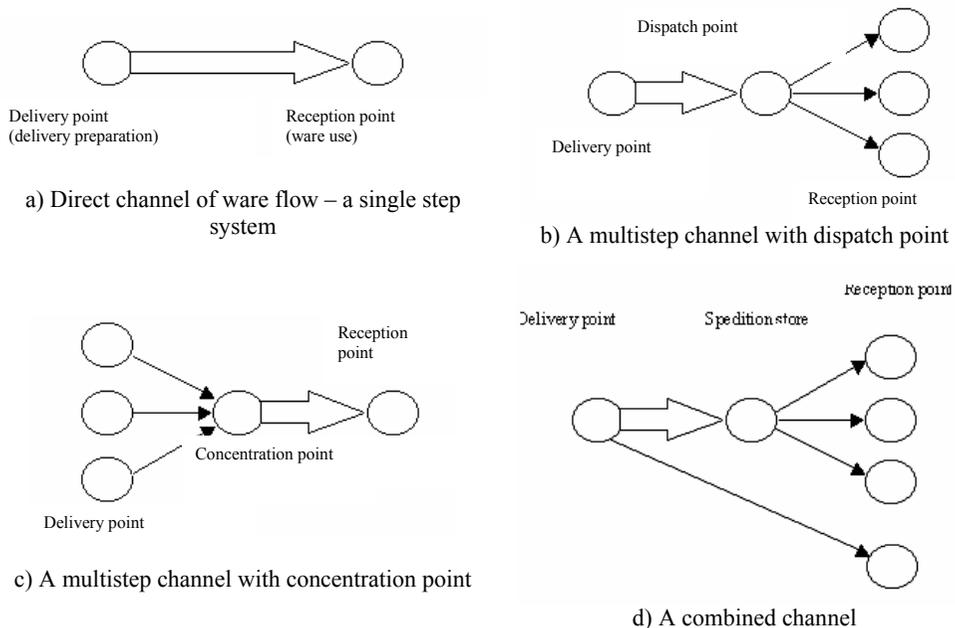


Fig. 1.

Source: S. Krawczyk, *Logistyka w zarządzaniu marketingiem (logistics in marketing management)*, Wydawnictwo Akademii Ekonomicznej we Wrocławiu, Wrocław 2000, p. 115., Hans Christian Pfohl, *Systemy Logistyczne, Biblioteka logistyka*, Poznań 1998, p. 6.

Single step systems feature direct flow of products from the place of the production to their destination. The cooperation is established from the initiative of the producer or the buyer. The advantage of this solution is the possibility to use just transport for ware delivery. In this system it is not necessary to have a storage place or cargo handling place between the source and the customer. The order fulfillment does not require any additional logistic processes. These systems may be applied only in those cases, when the delivery track is not too long, or the delivery time is short enough to satisfy the demands of potential customer [1.].

Multistep systems are logistic systems that feature the intermediate ware flow from the supplier to the consumer. The intermediate flow means, that before the product is supplied to the consumer, at least one additional process of its storage or moving must occur [1.]. These additional storage and moving processes are aimed either at storage and distribution or concentration of transported wares. They occur when there is necessary to intercept the wares. The necessity to concentrate or dispatch may occur in the situation, when transport from the supplier is to be divided into smaller parts, which subsequently are to be delivered to more than one customer. Concentration occurs, when to the intermediate point come small amounts of wares from more than one supplier. These have to be combined into one single bundle, which is to be transported later [2.].

Multistep systems are used in situations, when the production places are distant from the delivery points. In that case applying single-step structure, it would be necessary to assure a proper delivery frequency. The amount of supplied wares should be tailored to needs. This solution would imply substantial financial expenses, as well as problems with punctuality of deliveries. If a dispatch or concentration point is placed between the production plant and reception points, the costs and duration of the total operation shall be substantially limited. Combined structures combine the possibilities of direct transport and multistage product distribution.

The logistic system is a wide and complex notion. The understanding of the rules, which govern it, requires its division and classification into individual categories (Table 1). According to P. Blaik, “the first step leading to splitting logistic systems is the characterization of the general logistic system from the point of respective features” [5.].

The enterprises, which offer logistic services or possess in their organizational structure specialized logistic units may operate on areas of different size. In dependence on the area one speaks of institutional division. Here micro-logistic, macro-logistic, meta-logistic, mezo-logistic systems as well as external systems, sometimes referred to as intersystems, can be distinguished here.

- Micro-logistic systems – are logistic systems of enterprises, whose territorial area of conducted transport activity is limited to a single organization (e.g. the enterprise itself),
- Macro-logistic systems – are general economic logistic systems covering often substantial areas, the term macro-logistics refers to transport e.g. on the territory of a given country, continent (national logistic systems are included here),
- Meta-logistic systems – are systems, which integrate a number of individual micro-logistic systems of enterprises, that cooperate with each other (transport processes occurring between cooperating institutions)
- Mezo-logistic system – is a system of vertical integration of meta-logistic sub-systems,
- External logistic system – is a system, which integrates logistic processes between suppliers and customers [6.].

Table 1. Classification of logistic systems

Classification criteria	Logistic systems, subsystems
Institutional criterion (based on the number and kind of institutions making up the system)	micro-logistic system, macro-logistic system, meta-logistic system, mezo-logistic system, inter-system (external logistic system).
Functional criterion (based on the sphere of activity in the enterprise and in the whole logistic chain):	logistic sub-system in the sphere of supply, distribution and returns, integrated sub-system of material and marketing logistics, integrated logistic sub-system of suppliers, customers and in the sphere of commerce
Functional criterion (according to the content of logistic tasks):	transport, reserve shaping, material economy, package, order fulfillment sub-systems, customer service sub-system
Structural-decision-functional criterion (based on the structure of management functions and on the level of decision taking):	planning and control, logistics organization, logistic control, normative management, strategic management and operational management sub-systems, integrated logistic management sub-system.
Subject-structural criterion (based on the kind of processes and structures):	subsystem of integrated flows of wares and pieces of information-decisions, subsystem of control and protection in the organizational and institutional sense
Efficiency criterion (division based on efficiency components):	subsystem of logistic costs (incurred costs), subsystem of logistic services (effects).

Source: P. Blaik, *Logistyka, PWE, Warszawa 2001, p. 73-74.*

The functional division of logistic systems is based on individual phases, which have to occur in the enterprise in order to obtain the desired end effect, according to the form of the activity of the enterprise. In the case of a production enterprise this is the sale of the final product, whereas in the case of a commerce enterprise – sale of offered wares, while in the case of a service unit – offered service. “The fundamental functional division of logistic systems is obtained, tracing different phases of ware flow, from gaining raw materials by the industrial enterprise, to the sales market and then back to the supply market”⁴. Taking as the criterion the functional features, systems of material economy, transport, storage, package and order fulfillment can be distinguished.

Any enterprise is an organizational system, divided into smaller units called subsystems. One of them is the logistic sub-system. The system approach towards logistic processes occurring in commerce enterprises allows to consider their dependencies. The logistic system of a commerce organization is divided into individual subsystems according to different criteria. The institutional, functional, structural-decision and subject-structural criteria can be exemplified at this point.

2. A system integrated management of logistic processes in commerce enterprises

The concept of system approach applied to logistic management is related to a complex consideration of logistic processes occurring in the commerce enterprise. It allows to take into account many inter-related phenomena and to organize complex logistic activities. The logistic system allows for attainment of many assumed goals, which, when integrated, make

up a single complementary task [3.].

„The characteristic feature of system approach is the complex character of consideration of all the issues. Therefore making a change in one part of the total entity requires changes in other parts. At the same time all the actions should start from consideration of the total entity as a whole, whereas the parts and relationships between them should be derived from those changes.” In the system approach to logistic management, more important are the mutual interconnections between individual processes, than the processes themselves. By mastering individual processes, the global optimization in the logistics sphere is not obtained. Only the general approach to all logistic activities occurring within the commerce enterprise, i.e. their integration increases the chances to improve the efficiency of functioning of the enterprise.

High importance of the logistic system for the commerce enterprise is the result of increasing material and information flows. An easier cooperation with foreign enterprises, closer cooperation links with economic partners and the necessity to look after new suppliers and customers are the factors, which directly influence taken logistical actions and support their system approach. It follows from the fact, that appearing in logistic processes new relationships and phenomena have to be recognized and identified. It allows in the effect to take strategically correct decisions [6.].

As states Z. Sarjusz-Wolski the main cause of system approach to logistics in commerce enterprises is the will to reach the best possible customer service level. The source of this idea was the change of attitude towards marketing observed in the fifties of the last century. This approach, referred to as dynamic approach, proposed to take customer-oriented actions and not product-oriented ones, like in the case of classical marketing [7.].

Since the moment, when logistic processes began to be treated in a complex way, logistics became responsible for planning, fulfillment and control of activities related to ware flow and storage in the spheres of supply, distribution and production. The tasks fulfilled by logistics in the system approach are presented as:

- coordination of material and raw material flows,
- minimization of costs related to the flows,
- subjection of logistic activity to customer satisfaction.

The aims of the logistic system may be divided into two fundamental groups. The first one refers to the general aim, i.e. supporting the demand fulfillment on the market, taking into account optimal costs. The components of the second group are the individual aims: considered in the scale of the whole enterprise, but also those, which are formulated and assessed by the customer. Especially important are the tasks , which aim at “shaping the optimal structure of values and cost level as well as identification and putting into operation the efficiency potential of the logistic system and the enterprise” [11.].

To the effects of the system approach to the issues related to logistic management of commerce enterprises the following ones are accounted [11.]:

- application of unified terminology in the scope of logistics of the whole enterprise allows for a better understanding of occurring phenomena, and for the analysis of problems,
- the complex approach to issues occurring in logistic processes allows for a consideration of any of individual activities as the component of the whole system,
- the analysis of the dependencies and relationships between the components of the logistic system allows for their identification, thus for examination of the influence exerted by each of the components individually, as well as the system as a whole,
- taking correct decisions from the point of economy and strategy, being the result of the analysis of situations and case studies of earlier situations and of relationships in

the logistic system,

- better customer service allows for an improvement and getting closer contacts to the customers.

All the positive aspects of the system approach towards logistic processes have a direct impact on strengthening and improvement of the position of the enterprise on the market. Its competitiveness increases. The attainment of the planned effects resulting from the system approach towards logistic management may be affected by economic changes occurring in the neighborhood of the organization.

The division of the enterprise into individual systems allows for identification and examination of mutual relationships between them. Such an approach towards management issue is referred to as the system approach.

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